

Work Order ID 149900

August 09, 2016 10:24:09 AM

149900

Aug 26 x 2
Sept 12 x 2

Page 1

Item ID: D350-591-121

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 8/24/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: SLA Date: AUG 09 2016

Tooling:

Date:

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____

Date:

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D2351-041	Rev E								
IIN-D350-591	H								
100	Document Control	0.00							
100	DOCUMENT CONTROL								
DC	Memo	0.00							
Doc.Control -USB or Paperwork	Photocopy bluefile and type labels as per PPP D350-591-121 CHG005								
110	Large Fab	0.00							
110	Large Fab								
Large Fab	Memo	0.26							
Large Fab	1-Cut D2244-116 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G								
	2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets.								
	3-Deburr								

B#149900 x4 LH

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition			
				Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 149900***149900***

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Item ID: D350-591-121**Accept*****N900040100*****Setup Start*****NS1*****Revision ID:****Stop*****NS2*****Item Name:** Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible**Start Date:** 8/8/2016 **Start Qty:** 4.00***4*****Cust Item ID:****Required Date:** 8/24/2016 **Req'd Qty:** 4.00***4*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start*****NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop*****NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* CNC Bend 1 CNC Delta 100 Bender	BENDING MACHINE - SKIDTUBES Memo Bend as per Dwg D2351-041 using CNC Bender 1 and Folio FT011. Use Bend Program D2351-041.	0.05 0.09						16-08-17	
122 *122* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.01							 AUG 17 2016
126 *126* Large Fab Large Fab	 Memo ***BUFF AND REMOVE BENDING MARKS WITHIN .005", if deeper see engineer***	0.00 0.00				4		16-07-18	

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : _____							

Work Order ID 149900***149900***

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Item ID: D350-591-121 Accept ***N9000040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible
Start Date: 8/8/2016 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 8/24/2016 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC5- Inspect part completeness to step on W/O	0.00							
130									DAS
QC	Memo	0.01							9
Quality Control									9-89
140	Large Fab	0.00							
140									
Large Fab	Memo	0.22							
Large Fab	1-Bevel Fwd and Aft end for welding								
	2-Weld Aft End Bracket per QSI004 & Dwg D2351 using Welding Jig DT8033 A/RAluminum Rod 4130137								
	3-Do not Grind Flush TOP EDGE <i>fast</i>								
150	QC9- Inspect visual per QSI004- Fusion Welds	0.00							
150									DAS
QC	Memo	0.00							24
Quality Control									9-89

4x *CP* **16-07-19**

DAS
43
9-89

DAS
24
9-89

4

AUG 23 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐		☐	Pressure/Forced	☐	Temperature/Cure
Design ☐	☐	Operator ☐		☐	Bending	☐	Set-up
Doc/Data ☐	☐	Offset/Setup ☐		☐	Centre Not Concentric	☐	BOM/Route
Equip/Tooling ☐	☐	Supplier ☐		☐	Cracks	☐	Broken/Damage/Defect
Handling/Pre ☐	☐	Training ☐		☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified
Material ☐	☐	Use for Testing ☐		☐	Cuffs	☐	Contamination
Internal Transport ☐	☐	Poor Information ☐		☐	Crushing	☐	Countersink
Tribal Knowledge ☐	☐	Rushing ☐		☐	Heat Treat	☐	Cut Too Short
LOA ☐	☐	Product Improvement ☐		☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear
Substation ☐	☐	Process Improvement ☐		☐	Marks/Chatter	☐	Drill Holes
Past Expiry Date ☐	☐	Manufacturing Process ☐		OTHER : _____			
Misidentified ☐	☐	Past Due ☐					

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Reference:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC5- Inspect part completeness to step on W/O	0.00							
160							DAS		
QC	Memo	0.01					24	4	AUG 23 2016
Quality Control							9-89		
170	Chemical Conversion Coat per QSI005 4.1	0.00							
170							DAS		
HandFinish	Memo	0.11					43	4x	AUG 23 2016
Hand Finishing							9-89		
180	QC7-Inspect Chemical Conversion Coat	0.00							
180							DAS		
QC	Memo	0.01					24	4	AUG 23 2016
Quality Control							9-89		

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
THIS IS QA CAO AS 30-6									
THIS IS QA									
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ CAO AS 30-6 Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Work Order ID 149900***149900***

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Item ID: D350-591-121

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 8/24/2016 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

NR1

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

0.00

190

Large Fab

Large Fab

Memo

0.21

Large Fab

1-Rivet Leg Assembly as per Dwg D2351

2-Weld Fwd End Plate per OSI 004 & Dwg D2351
A/RAluminum Rod **4130137**

3-Grind end cap flush per dwg D2351

4xDAS
43
9-89**AUG 23 2016**

220

QC10- Inspect visual per OSI004- ground welds

0.00

220

QC

Memo

0.00

Quality Control

④**16-0823**DAS
9
9-89

230

QC5- Inspect part completeness to step on W/O

0.00

230

QC

Memo

0.01

Quality Control

④**16-0823**DAS
9
9-89

DQA:

Date: 09/22/2016



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed

Date: SEP 13 2016

Work Order update only

Work Order: 149900		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. D350-591-121		Rework ☒		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. 16-6013		Scrap ☐		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Use-as-is ☐		Thermoforming ☐	Finishing ☒	Rec/Store/Packaging ☐	Other ☐		
		Suspected Unapproved ☐		Large Fab ☐	Composite ☐	Supplier ☐			
Date: 16/08/24		Step #: 250		QTY Effective: N STOP.			MRB (QSI042) Approval		
Description Work Order Deviation		Disposition					Completed By		
Found after powder coating that paint was missing in one area. 2c Parts were placed directly under blower in over. * Instr employee not to have parts directly under blower		Scuff complete stop. clean w/ wash 'n' wipe Apply light spray of powder & ensure complete coverage of powder. inspect to ensure even complete coverage of powder coat + no texture.					16/08/24 DAS 15 9-89 Lead hand / Supervisor Approval Verification DAS 16 9-89 16/08/24 QC / QA Coordinator Approval DAS 16 9-89 16/08/24		
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☒	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☒				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							

Work Order ID 149900

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149900

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Item ID: D350-591-121 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible
Start Date: 8/8/2016 Start Qty: 4.00 ***4*** Cust Item ID:
Required Date: 8/24/2016 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	Chemical Conversion Coat per QSI005 4.1	0.00				(4)	Ø		2016/08/24 BEB
240 HandFinish Hand Finishing	Memo	0.03							PTO →
250	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
250 Powdercoat Powder Coating	Memo START TIME: 4:00AM OVEN TEMPERATURE: 320°F FINISH TIME: 9:30AM	0.12				4LH	Ø		2016/08/24 BEB
260	Wing Walk as per dwg QSI005 4.4 Batch	0.00							
260 HandFinish Hand Finishing	Memo	0.13				(4)LH	Ø		2016/08/24 DAS 15 9-89 BEB

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			

Work Order ID 149900

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Item ID: D350-591-121

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016 Start Qty: 4.00 ***4***

Cust Item ID:

Required Date: 8/24/2016 Req'd Qty: 4.00 ***4***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270	QC3- Inspect Part Finish	0.00							DAS 38 9-89
270									
QC	Memo	0.01				1			AUG 25 2016 Pto →
Quality Control									
280	Pick Kit	0.00				4	PC		DAS 28 9-89
280									AUG 26 2016
Packaging	Memo	0.01							
Packaging									
290	QC4- 100% Inspect kits for completeness	0.00							
290									
QC	Memo	0.02							
Quality Control									

AUG 26 2016

DQA:

Date: 07/22/2016



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: SEP 13 2016

Work Order update only ☐

Work Order: 149900		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. D350591-121		Rework ☒		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. 16-6012		Scrap ☐		Machining ☐	Small Fab ☒	Prod. Eng. Coord. ☐	Quality ☐		
		Use-as-is ☐		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
		Suspected Unapproved ☐		Large Fab ☐	Composite ☐	Supplier ☐			
Date: 16/08/24		Step #: # 270		QTY Effective: X1			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition			DAS 16 9-89 16/08/24		
Found at Powder Coat inspection that step D2582 missing a Root.				ADD correct Root to Assembly. Installed as per drawing.			Completed By 38 9-89 AUG 25 2016		
RC. was not found on inspection of step D2582 B145720 w/o.				Root MS 20470 AD 4-4 M 125133			Lead hand / Supervisor Approval Verification DAS 30 9-89 AUG 24 2016		
				touch up work under ASPR 02205			QC / QA Coordinator Approval DAS 16 9-89 16/08/24		
Root Cause				FAULT CATEGORY					
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Set-up ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☒	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☒	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							

Work Order ID 149900

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149900

Page 8

Item ID: D350-591-121**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible**Start Date:** 8/8/2016 **Start Qty:** 4.00***4*****Cust Item ID:****Required Date:** 8/24/2016 **Req'd Qty:** 4.00***4*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
300	Packaging	0.00							
300									
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-591-121 Location:FG039								
310	QC21- Final Inspection - Work Order Release	0.00							
310									
QC	Memo	0.07							
Quality Control									

AUG 26 2016

AUG 26 2016

AUG 26 2016

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design ☐	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data ☐	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling ☐	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre ☐	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material ☐	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport ☐	☐	Poor Information	☐	Crushing	☐	Countersink	☐
Tribal Knowledge ☐	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐
LOA ☐	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐
Substation ☐	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐
Past Expiry Date ☐	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified ☐	☐	Past Due	☐				

Picklist Print

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Page 1

Work Order ID: 149900

149900

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016

Required Date: 8/24/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:E02.10.21Re-format; Incorporated D2351-041 IPPKJ/RF
IPP rev. F 06.02.23 added grinding EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D2244-116

Manufactured No

110

Each

57.0000

0.5

3

D2244-116

STEP EXTRUSION

**

2

Cp

16.08.16

Location

Loc Qty

Loc Code

HALL

57

117818

57

WA003

-0.0000368

D2850-1

Manufactured No

140

Each

10.0000

1

4

D2850-1

End Bracket

**

3144764 → 4x

DAS
43
9-89

AUG 18 201

Location

Loc Qty

Loc Code

WA003

10

144767

10

D2582

Manufactured No

190

Each

4.0000

1

4

D2582

Hi-Skid Step Leg Ass'Y

**

B 145720 → 4x

DAS
43
9-89

AUG 23 201

Location

Loc Qty

Loc Code

WA003

4

148884

4

Picklist Print

August 09, 2016 10:24:16 AM

Page 2

Work Order ID: 149900

149900

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016

Required Date: 8/24/2016

Start Qty: 4.00

Required Qty: 4.00

MS20600-AD4W3

Purchased

No

190

Each

564.0000

16

64

DAS

43

9-89

AUG 18 2016

✓ ***MS20600-AD4W3***

Cherry Rivets

Location

Loc Qty

Loc Code

GA

150

122151

2

m129795

148

ST308

62

m134167

62

WA003

352

m130018

84

- m135297

268

64

D2673-34

Manufactured

No

210

Each

34.0000

1

4

✓ ***D2673-34***

End Plate

B139627 → 4x **AUG 18 2016**

Location

Loc Qty

Loc Code

WA003

34

139627

10

145993

24

DAS

43

9-89

AN4-16A

Purchased

No

290

Each

125.0000

2

8

AN4-16A

Bolt

DAS 28 9-89

Location

Loc Qty

Loc Code

FG

5

121541

5

ST343

120

M135127

20

M135297

100

4

DAS 27 9-89

Picklist Print

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Page 3

Work Order ID: 149900

149900

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016

Required Date: 8/24/2016

Start Qty: 4.00

Required Qty: 4.00

NAS1149D0463J

Purchased

No

290

Each

2,306.000

6

24

NAS1149D0463J

Washer

**

PC DAS 28 9-89

DAS 27 9-89

Location

Loc Qty

Loc Code

GA

240

M132035

15

M134508

32

M135056

193

ST260a

1600

M135390

1600

24

ST263

466

M134943

66

M135056

400

D2230-1

Manufactured

No

290

Each

108.0000

1

4

D2230-1

Mounting Lug

**

PC DAS 28 9-89

DAS 27 9-89

Location

Loc Qty

Loc Code

FG

4

84136

4

ST521

104

115306

1

146288

103

4

AN3-37A

Purchased

No

290

Each

47.0000

2

8

AN3-37A

Bolt

**

PC DAS 28 9-89

DAS 27 9-89

Location

Loc Qty

Loc Code

FG

10

119086

10

ST347

37

m133694

1

m134180

6

m135135

30

8

AUG 26 2016

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Shop Packet Print

Page 3

Picklist Print

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Page 4

Work Order ID: 149900

149900

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016

Required Date: 8/24/2016

Start Qty: 4.00

Required Qty: 4.00

MS21042L3

Purchased

No

290

Each

1,493.000

2

8

MS21042L3

Nut

PC

DAS
28
9-89

DAS
27
9-89

Location

Loc Qty

Loc Code

FP001

14

m133790

14

GA

535

m134360

112

m135135

423

ST303

944

m134039

12

m135056

232

m135135

700

8

AN4-13A

Purchased

No

290

Each

468.0000

3

12

AN4-13A

Bolt

PC

DAS
28
9-89

DAS
27
9-89

Location

Loc Qty

Loc Code

FG

20

122808

20

GA

19

m134634

19

over003

39

m134943

39

ST343

390

m134852

36

m135390

354

12

AUG 26 2016

Picklist Print

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Page 5

Work Order ID: 149900

149900

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016

Required Date: 8/24/2016

Start Qty: 4.00

Required Qty: 4.00

MS21042L4

Purchased

No

290

Each

1,794.000

3

12

MS21042L 4

Locknut

PC

DAS
28
9-89

Location

Loc Qty

Loc Code

FP001

51

m133363

51

GA

424

m133769

116

m135058

308

ST3003

26

m134955

26

ST303

1293

m135127

317

m135297

976

12

D2230-3

Manufactured

No

290

Each

148.0000

1

4

D2230-3

Mounting Lug

PC

DAS
28
9-89

Location

Loc Qty

Loc Code

FG

8

109344

4

89045

4

ST521

2

144487

2

ST525A

138

146287

138

4

AUG 26 2016

Picklist Print

August 09, 2016 10:24:16 AM

Page 6

Work Order ID: 149900

149900

Parent Item: D350-591-121

D350-591-121

Parent Item Name: Heli-Access-Step™ LH - High Gear, Short Step, Float Compatible

Start Date: 8/8/2016

Required Date: 8/24/2016

Start Qty: 4.00

Required Qty: 4.00

D2732-030

Manufactured No

290

Each

46.0000

2

D2732-030

Rubber Cushion - 3"

**

8

B149044 P DAS 28 9-89

DAS
27
9-89

Location

Loc Qty

Loc Code

FG

40

146999

40

ST410

6

147721

6

cut (2) at 3.00"

NAS1149D0363J

Purchased

No

290

Each

1,787.000

4

16

NAS1149D0363.J

Washer

**

PC

DAS
28
9-89

Location

Loc Qty

Loc Code

GA

386

m134055

386

ST263

1401

m134955

401

m135297

1000

DAS
27
9-89

AUG 26 2016

16



DESIGN KE	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2351	REV. E SHEET 1 OF 2
DATE 05.11.14		TITLE HIGH FLOAT STEP ASSEMBLY	SCALE NTS
A	95.02.15	NEW ISSUE	
B	97.05.22	END CAPS CHANGED	
C	97.07.23	ADDED BUSHING AND FACING INFO	
D	98.12.17	CHANGED TO BEND, D2850 REPLACES D2357 & D2358, INCORP. DEO 9084	
E	05.11.14	UPDATE FINISHING NOTE	

D2351 HIGH FLOAT STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY -041	QTY -042
D2351-041	High Float Step Assembly (LH)	X	
D2351-042	High Float Step Assembly (RH)		X
D2244-55.4	STEP EXTRUSION*	1	1
D2582	STEP LEG ASSEMBLY	1	1
D2673-34	STEP END PLATE	1	1
D2850-1	END BRACKET	1	
D2850-2	END BRACKET		1
MS20600AD4W3	RIVETS	16	16

*cut per drawing

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NO. 149900

AUG 09 2016

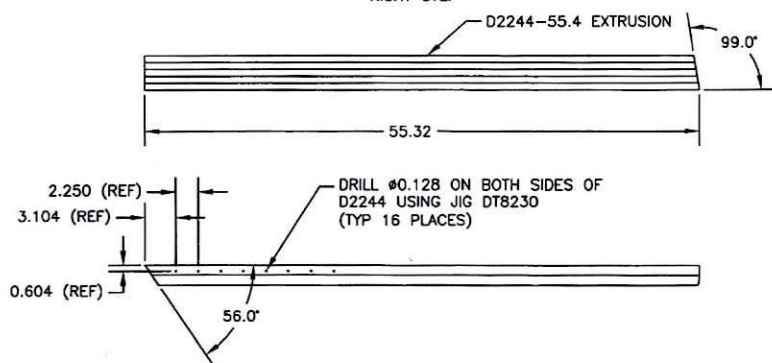
RELEASED
05.11.28

PH
ECN 1105
UNDER REVIEW
07.11.29
PUR FILE # 263

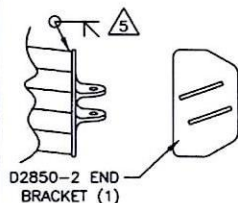
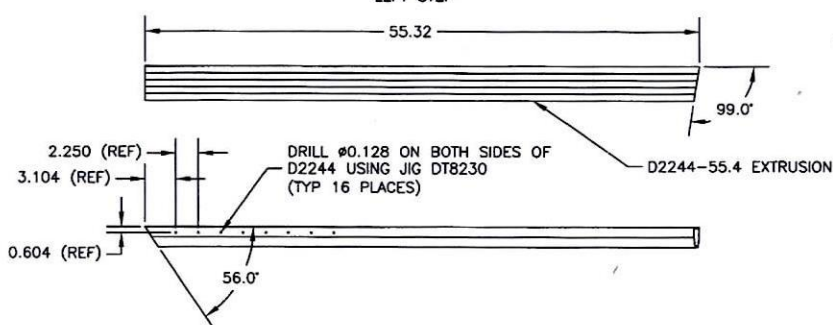
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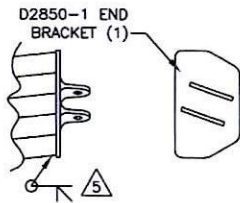
D2351-2 CUTTING/DRILLING DETAIL
RIGHT STEP



D2351-1 CUTTING/DRILLING DETAIL
LEFT STEP



DETAIL A
SCALE: 1:4



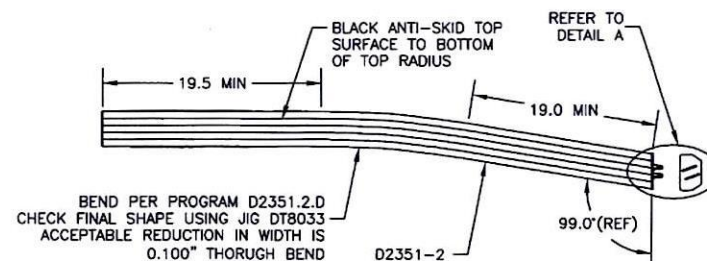
DETAIL B
SCALE: 1:4

GENERAL NOTES

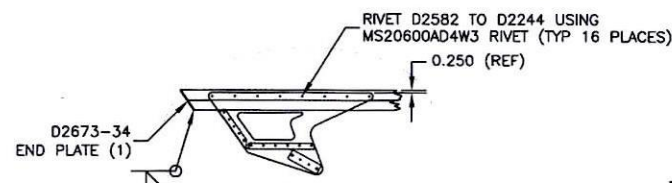
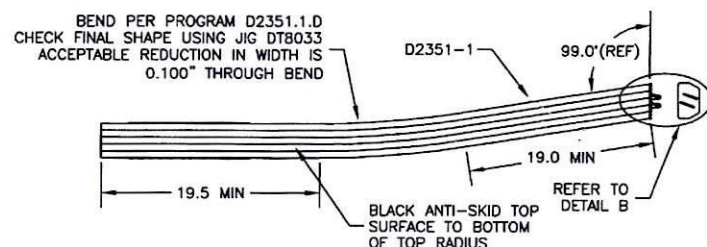
- 1) WELD PER DART QSI 004
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

5) CHAMFER D2244 EXTRUSION 0.075"x45° BEFORE WELDING D2850-1 OR D2850-2 IN PLACE. DO NOT GRIND FLUSH.

D2351-042 BENDING/ASSEMBLY DETAIL
RIGHT STEP



D2351-041 BENDING/ASSEMBLY DETAIL
LEFT STEP



RELEASED
05.11.14

UNDER REVIEW

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DESIGN KE	DRAWN BY PH	DART	DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA
CHECKED #	APPROVED #	DRAWING NO. D2351	REV. E SHEET 2 OF 2
DATE 05.11.14	TITLE HIGH FLOAT STEP ASSEMBLY	SCALE 1:12	

5.0 PARTS LIST

Qty -117A	Qty -119	Qty -133	Part Number	Description
X			D350-591-117A	<i>Heli-Access-Step</i> ™, Pre-Flight Step
	X		D350-591-119	<i>Heli-Access-Step</i> ™, Long Step – Low Skid
		X	D350-591-133	<i>Heli-Access-Step</i> ™, Aft Maintenance Step
	1		D2355	STEP ASSEMBLY (LOW-LONG)
		1	D2846-041	STEP ASSEMBLY (MAINTENANCE)
2	2		D2171	CLAMP
2	2		D2182B035	CUSHION
		4	D2230-1	MOUNTING LUG
		4	D2230-3	MOUNTING LUG
4	4		D2274	RADIUS BLOCK
1			D2362-041	SUPPORT BRACKET
	1		D2362-3	SUPPORT BRACKET
		1	D2845	MOUNTING PLATE
1	1		D3595-200-300	CUSHION
		8	D2732-030	CUSHION
	2		AN3-37A	BOLT
		2	AN4-7A	BOLT
		4	AN4-11A	BOLT
		8	AN4-16A	BOLT
	4		AN4-21A	BOLT
4	1		AN4-22A	BOLT
	4		NAS1149D0363J	WASHER (AN960JD10)
4	6	14	NAS1149D0463J	WASHER (AN960JD416)
	2		MS21042L3	NUT
4	5	14	MS21042L4	NUT

Qty -121	Qty -122	Qty -123	Qty -124	Part Number	Description
X				D350-591-121	<i>Heli-Access-Step</i> ™, Short Step – High Skid, LH
	X			D350-591-122	<i>Heli-Access-Step</i> ™, Short Step – High Skid, RH
		X		D350-591-123	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, LH
			X	D350-591-124	<i>Heli-Access-Step</i> ™, Short Step – Low Skid, RH
1				D2351-041	STEP ASSEMBLY (HIGH-SHORT, LH)
	1			D2351-042	STEP ASSEMBLY (HIGH-SHORT, RH)
		1		D2356-041	STEP ASSEMBLY (LOW-SHORT, LH)
			1	D2356-042	STEP ASSEMBLY (LOW-SHORT, RH)
1	1	1	1	D2230-1	MOUNTING LUG
1	1	1	1	D2230-3	MOUNTING LUG
2	2	2	2	D2732-030	CUSHION
2	2	2	2	AN3-37A	BOLT
1	1	1	1	AN4-13A	BOLT
2	2	2	2	AN4-16A	BOLT
4	4	4	4	NAS1149D0363J	WASHER (AN960JD10)
6	6	6	6	NAS1149D0463J	WASHER (AN960JD416)
2	2	2	2	MS21042L3	NUT
3	3	3	3	MS21042L4	NUT